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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/530,629	06/19/00	DADD	SHP-PT058

MM91/1222
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EXAMINER
PEREZ, G

ART UNIT	PAPER NUMBER
2834	

DATE MAILED: 12/22/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

MA

Office Action Summary

Application No.

09/530,629

Applicant(s)

DADD, MICHAEL

Examiner

Guillermo Perez

Art Unit

2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claims ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. & 119(e).

Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892)
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____
- 18) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other: ____

DETAILED ACTION

Specification

This application does not contain an abstract of the disclosure as required by 37 CFR 1.72(b). An abstract on a separate sheet is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1-6, 9-10, 15-16 are rejected under 35 U.S.C. 102(b) as being anticipated by Kling (U. S. Pat. No. 4,126,797).

Referring to claim 1, Kling discloses an electromechanical transducer comprising:

a stator (20') having a plurality of coils (a,b,c,d, 17); and

a magnetic assembly (21) having a plurality of magnetic poles (D) there being flux linkage between the coils and the magnetic poles, wherein the stator and the magnetic assembly are arranged for relative linear movement and at least the plurality of coils is arranged to describe a helical path about the axis of the transducer whereby the magnetic circuit includes a helical component.

Referring to claim 2, Kling discloses that the stator includes a plurality of core elements (h) on which the plurality of coils are mounted and associated pole pieces.

Referring to claim 3, Kling discloses a magnetic circuit member (15, 20') provided on the side of the magnetic assembly opposite to the side of the magnetic assembly facing the stator.

Referring to claim 4, Kling discloses that the magnetic circuit member is integral with the rotor and moves as part of the rotor.

Referring to claim 5, Kling discloses that the plurality of coils of the stator and the plurality of magnetic poles of the magnetic assembly are arranged to describe helical paths about the axis of the transducer.

Referring to claim 6, Kling discloses that the angle of the helical path of the plurality of coils is different to the angle of the helical path of the plurality of magnetic poles of the magnetic assembly (figure 1-2, 4-17).

Referring to claim 9, Kling discloses that two transducers of opposite handedness are coupled thereby constraining rotational movement of the magnetic assemblies relative to the stator.

Referring to claim 10, Kling discloses that at least one of the plurality of core elements and the associated pole pieces of the stator, the magnetic circuit member, and intervening segments interposed between the magnetic poles of the rotor consists of high permeability material.

Referring to claim 15, Kling discloses that the rotor does not form a closed cylinder.

Referring to claim 16, Kling discloses a compressor having an electromechanical transducer as claimed in claim 1, connected to a piston and cylinder arrangement.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kling in view of Davey et al. (EP 0028144A1).

Kling discloses an electromechanical transducer as described on item 1 above. However, Kling does not disclose that holding means are additionally provided to constrain at least rotational relative movement between the magnetic assembly and the stator; nor that the holding means is in the form of one or more spiral springs.

Davey et al. disclose that holding means (31) are additionally provided to constrain at least rotational relative movement between the magnetic assembly and the stator; and that

the holding means is in the form of one or more spiral springs (31), for the purpose of creating axial flexibility and distributing stresses equally.

It would have been obvious at the time the invention was made to modify the electromechanical transducer of Kling and provide it with holding means being additionally provided to constrain at least rotational relative movement between the magnetic assembly and the stator; the holding means being in the form of one or more spiral springs as disclosed by Davey et al., for the purpose of creating axial flexibility and distributing stresses equally.

3. Claims 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kling in view of Prymak (U. S. Pat. No. 4,616,151).

Kling discloses an electromechanical transducer as described on item 1 above. However, Kling does not disclose that at least one of the stator, the magnetic assembly and the magnetic circuit member consists of a plurality of laminations stacked together; nor that the planes of the individual laminations describe a helical path about the axis of the transducer.

Prymak discloses that at least one of the stator (figure 1), the magnetic assembly and the magnetic circuit member consists of a plurality of laminations (19) stacked together; and that

the planes of the individual laminations describe a helical path about the axis of the transducer, for the purpose of reducing the excitation of resonant case vibration modes and producing quieter motor operation.

It would have been obvious at the time the invention was made to modify the electromechanical transducer of Kling and provide it with at least one of the stator, the magnetic assembly and the magnetic circuit member consisting of a plurality of laminations stacked together; the planes of the individual laminations describing a helical path about the axis of the transducer as disclosed by Prymak, for the purpose of reducing the excitation of resonant case vibration modes and producing quieter motor operation.

4. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kling in view of Cook et al. (U. S. Pat. No. 5,719,451).

Kling discloses an electromechanical transducer as described on item 1 above. However, Kling does not disclose that the magnetic assembly consists of a single component having isotropic magnetization characteristics whereby the magnetic assembly has a non-binary magnetic field distribution.

Cook et al. disclose that the magnetic assembly consists of a single component having isotropic magnetization characteristics whereby the magnetic assembly has a non-binary magnetic field distribution (column 5, lines 12-22), for the purpose of providing opposed magnetic poles at portions of the cylindrical faces at opposite ends of the cylinder.

It would have been obvious at the time the invention was made to modify the electromechanical transducer of Kling and provide it with a magnetic assembly consisting of a single component having isotropic magnetization characteristics whereby the magnetic assembly has a non-binary magnetic field distribution as disclosed by Cook et al., for the purpose of providing opposed magnetic poles at portions of the cylindrical faces at opposite ends of the cylinder.

5. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kling in view of Delson et al. (U. S. Pat. No. 6,002,184).

Kling discloses an electromechanical transducer as described on item 1 above. However, Kling does not disclose a torque transducer for measuring the axial force generated by the electromechanical transducer.

Delson et al. disclose a torque transducer (129), for the purpose of measuring the axial force generated by the electromechanical transducer.

It would have been obvious at the time the invention was made to modify the electromechanical transducer of Kling and provide it with a torque transducer as disclosed by Delson et al., for the purpose of measuring the axial for a generated by the electromechanical transducer.

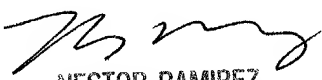
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Guillermo Perez whose telephone number is (703) 306-5443. The examiner can normally be reached on Monday through Thursday and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on (703) 308 1371. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305 3432 for regular communications and (703) 305 3432 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308 0956.

Guillermo Perez
December 16, 2000


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